

## CHAPTER 8

# DEMAND FOR REMEDIATION OF CONTAMINATED WASTE SITES MANAGED BY CIVILIAN FEDERAL AGENCIES

This chapter describes the market for the cleanup of “civilian” federal agency (CFA) sites.

“Civilian” federal agencies include all federal agencies except the Department of Energy (DOE) and Department of Defense (DOD). Each agency is responsible for cleaning up contaminated waste sites at facilities it owns or operates. Collectively, these agencies are responsible for thousands of sites.<sup>a</sup>

The CFA market can be estimated in terms of the number of sites or the number of facilities that will require remediation. A facility can contain more than one contaminated site.

Estimates of the approximate number of contaminated sites at the U.S. Department of Interior (DOI), U.S. Department of Agriculture (USDA), and National Aeronautics and Space Administration (NASA) facilities are available from a 1995 report by the U.S. Council on Environmental Quality and Office of Management and Budget.<sup>[1]</sup> DOI is responsible for a large number of potentially contaminated sites on the more than 440 million acres of federal land it manages. According to preliminary DOI estimates, the department may have as many as 26,000 sites requiring some cleanup. USDA currently estimates that, including sites at facilities listed on the Docket, there are 3,000 potentially contaminated sites on land under its management. NASA has identified 730 potentially contaminated sites at the facilities listed on the Docket. Site inventories and evaluations are ongoing at these agencies. The CEQ report did not address other CFAs.

The “Federal Agency Hazardous Waste Compliance Docket,” is a more comprehensive source of information on contaminated facilities

for which CFAs are responsible.<sup>[2]</sup> The Docket is based on reports filed by the agencies on the number of contaminated facilities, including those containing the aforementioned DOE, NASA, and USDA sites. The estimates in this chapter of the total number of CFA facilities that will require remediation were derived from this docket.

As of April 1995, 1,047 facilities, distributed among 17 civilian federal agencies, were listed on the Docket. About 700 of these facilities eventually could require some environmental cleanup.<sup>[2]</sup> April 1995 is the most recent date for which data are available. EPA plans to update it in the summer of 1997. The Docket, mandated under Section 120(c) of the Comprehensive Environmental Response, Compensation, Liability Act (CERCLA) is a repository for information about federal facilities that manage hazardous waste or have the potential to release hazardous substances into the environment.

Although an overall estimate of the potential cost of cleaning up these facilities is not available, estimates have been generated for DOI, USDA, and NASA, which together account for over 70 percent of the civilian federal agency facilities listed on the Docket. Cleanup of the over 500 facilities for which these agencies are responsible is expected to cost between \$8 billion and \$13 billion in 1994 dollars. Extrapolating this estimate for these 500 facilities to the over 700 civilian facilities and updating to 1996 dollars results in an estimated life-cycle-cost of \$15 billion for the entire market segment. This estimate is about half the projected cost of the cleanup of DOD sites and less than 25 percent of the anticipated cost of the cleanup of DOE’s sites (see Chapters 6 and 7).

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<sup>a</sup> Throughout this chapter, the term “site” will be used to indicate an individual area of contamination. The term “facility” identifies an entire tract, including all contiguous land, that is the responsibility of the subject agency. A “facility” may contain one or more contaminated areas or “sites.”

## 8.1 Civilian Federal Agency Cleanup Programs

The federal government must comply in the same manner as private parties with the provisions of CERCLA and the Resource Conservation and Recovery Act (RCRA). These statutes make federal agencies liable for the cleanup of contaminated waste at currently or formerly owned facilities. Under the 1986 Superfund Amendments and Reauthorization Act (SARA), the federal government also may be liable for cleaning up contaminated waste at facilities acquired through foreclosure or other means and facilities purchased with federal loans. To meet these requirements, civilian federal agencies have established programs to assess potentially contaminated sites, including leaking underground storage tanks, and clean them up if necessary. Most agencies have established central offices to manage these programs; others have adopted a decentralized approach, organizing their programs by function or geographical location.

NASA, for example, uses a decentralized management approach, but provides policy guidance, priority setting, and oversight from a central Environmental Management Office.<sup>b</sup> The central office has delegated responsibility for environmental cleanup and compliance to the directors of its 10 major centers around the country. NASA's plans call for completing its cleanup program within the next 25 years.<sup>[1]</sup>

At many DOI facilities, the responsibility for cleanup will be shared with the private parties or other agencies that undertook activities that produced the contamination. DOI has established a Central Hazmat Fund to provide funding for some cleanup projects. This fund may be used for remedial investigations, feasibility studies, and cleanups at sites for which DOI may be liable. Additional cleanup activities are funded through the appropriations of the DOI bureaus (such as the U.S. Bureau of Mines) with responsibility for the facilities.<sup>[1]</sup>

USDA's overall program is at an early stage of development, but its plans call for completing site cleanup and natural resource restoration at its facilities within the next 50 years. A complete inventory of potentially contaminated sites still is underway by the agencies within USDA. The USDA expects that private sector responsible parties (RPs), such as mining companies whose past activities may have contributed to the contamination of land under USDA's management, will pay a share of the cost of cleanup of their facilities.<sup>[1]</sup>

## 8.2 Factors Affecting Demand for Cleanup

Four primary factors influence the market for remediation of civilian federal agency contaminated waste sites.

- All federal agencies are constrained by budget considerations when planning for site remediation. Even though agencies may request funds for contaminated site management and remediation, Congress may not provide the necessary funding. As the availability of resources to meet the full range of national needs becomes less and less certain, agencies are intensifying their efforts to prioritize cleanup activities within and across facilities by doing a better job of evaluating alternative future land uses, estimating risks, evaluating available technologies, and analyzing the relative costs and benefits of various approaches to cleanup.<sup>[1]</sup>

In addition, the federal budget process has created incentives for agencies to implement management reforms that will reduce the costs of operations. Some of these include encouraging and eliminating barriers to the use of less costly, innovative technologies; using more cost-effective contracting procedures; streamlining management structures and processes; and using the "lessons learned" from other agencies and the private sector.<sup>[1]</sup>

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<sup>b</sup> NASA centers are Lewis Research Center Ohio, Langley Space Center Virginia, Goddard Spaceflight Center Maryland, Kennedy Space Center Florida, Marshall Space Center Alabama, Stennis Space Center Alabama, Johnson Space Center Texas, Ames Space Center California, Jet Propulsion Laboratory California, and Dryden Space Center California.

- Federal agencies may be liable for cleaning up contamination at properties acquired through foreclosure or other means. In a September 1995 memorandum, EPA and the Department of Justice stated the government's intention to enforce the CERCLA Lender Liability Rule on federal regulatory, lending, and credit agencies that have "involuntarily acquired" contaminated property through foreclosure or other mechanisms, such as civil and criminal seizures and asset forfeitures.<sup>[3]</sup>

In general, federal agencies that "involuntarily" acquire contaminated property are exempt from CERCLA liability. However, if a federal agency loans money to, and actively participates in the management of, organizations using or generating hazardous waste, it may be liable for remediating these sites if hazardous waste is spilled or improperly disposed.<sup>[4]</sup> For example, federal credit agencies, such as the Small Business Administration (SBA), often provide loans and advice to businesses that use or generate hazardous materials. If SBA actively participated in management decisions and acquired the business through foreclosure, it may be liable for the cost of cleanup. Federal liability must be determined separately for each site acquired through foreclosure or other means. Data are not available on the number of sites for which civilian agencies could be liable under this rule.

- Changes in state and federal environmental regulations and standards could impact the level and pace of the cleanup required at civilian federal facilities. If cleanup standards become more rigorous in the future, the market may require more advanced technologies or longer-term and more intensive use of existing technologies than is currently anticipated. Conversely, if standards become less stringent in the future, the need and market for new remedial technologies could be reduced.
- The transfer of public properties to private use may require agencies to reallocate resources to clean up properties designated for transfer.

### 8.3 Number of Facilities and Sites

There are two potential approaches to estimating the CFA market for hazardous waste remediation services: estimating the number of facilities and estimating the number of sites that will require some type of remedial action. The estimates in this chapter are derived from the "Federal Agency Hazardous Waste Compliance Docket," which provides estimates of the number of facilities reported by 17 CFAs.<sup>[2]</sup> Data for the number of contaminated sites are available for only three agencies, DOI, NASA, and USDA. These data are discussed at the end of this section.

The Docket, maintained by EPA, contains information about federal facilities that manage hazardous waste or may have had releases of hazardous substances into the environment. Although the statute calls for the Docket to be updated every six months, the last update occurred in April 1995, because of resource constraints and other factors. Since many sites at federal facilities still are being inventoried and characterized, the facilities listed on the Docket may not account for all potentially contaminated sites on land owned or operated by CFAs.

Civilian federal agencies submit information for the Docket to EPA as required under RCRA and CERCLA. Because the Docket contains information that is broader than hazardous waste site remediation programs, it does not specifically indicate the number of federal facilities that require remediation. Also, once a facility has been added to the Docket, it is not removed, even after it is cleaned up. In addition, the Docket excludes federal facilities that have been sold; private facilities where the federal government may have contributed to site contamination; and facilities that generate small quantities of hazardous waste.

The April 1995 Docket included 732 facilities that had been listed as a result of a notification of a release or potential release under CERCLA Section 103 (Exhibit 8-1).<sup>[2]</sup> These facilities, owned or operated by 17 civilian federal agencies, comprise the estimated market for the cleanup of civilian federal agency sites. Not all of the facilities on the Docket contain contaminated sites. After further study, some sites may be designated as requiring

**Exhibit 8-1: Number of Civilian Federal  
Facilities Potentially Requiring Cleanup**

Agency	Facilities Listed on Docket <sup>a</sup>	Facilities Reported Under CERCLA 103	Facilities Reported Under CERCLA 103 with NFRAP Status
Department of Agriculture	148	121	37
Central Intelligence Agency	1	1	0
Department of Commerce	11	9	3
Army Corps of Engineers <sup>b</sup>	51	20	5
Environmental Protection Agency	25	9	3
General Services Administration	23	11	3
Department of Health and Human Services	8	6	2
Department of Housing and Urban Development	3	1	0
Department of the Interior	432	389	169
Department of Justice	21	14	0
Department of Labor	2	2	1
National Aeronautics and Space Administration	17	13	4
U.S. Postal Service	23	12	4
Tennessee Valley Authority	40	21	12
Department of Transportation	121	86	43
Department of the Treasury	9	3	1
Veterans Administration	29	14	5
<b>Total</b>	<b>1,047</b>	<b>732</b>	<b>292</b>
<p>Notes:</p> <p>a The number of "sites" (individual areas of contamination) at each facility is not included in the "Federal Agency Hazardous Waste Compliance Docket."</p> <p>b The U.S. Army Corps of Engineers manages environmental cleanup projects for a variety of civilian federal agencies as well as for the U.S. Department of Defense and the U.S. Department of Energy. The facilities to which this table refers are <i>civilian</i> federal facilities for which the Corps of Engineers has environmental cleanup management responsibility.</p> <p>Source: Source: U.S. Environmental Protection Agency. "Federal Agency Hazardous Waste Compliance Docket," 60 <i>Federal Register</i>, pp. 18474-18518, April 11, 1995.</p>			

no further response or action planned and do not need to undergo remediation. Also, the Docket does not indicate the number of contaminated sites at each facility. The Docket also contained another 315 facilities that had been listed under other environmental statutes.

A Preliminary Assessment (PA) is conducted under Section 120(d) of CERCLA for all facilities listed on the Docket to evaluate the threat they pose to public health or the environment.<sup>[4]</sup> As of April 1995 EPA had determined that 292 of the 732 facilities listed under CERCLA Section 103 were unlikely to require listing on the National

Priorities List (NPL). EPA uses the term NFRAP (No Further Remedial Action Planned) to designate these facilities (Exhibit 8-1).

While the NFRAP designation means that EPA anticipates no further involvement in site assessment or cleanup, it does not mean that the facility poses no environmental threat or that some type of environmental response action is not needed. It simply indicates that the problems at the facility are not severe enough to warrant an NPL listing and Superfund cleanup.<sup>[5]</sup> Thus, at least some of these facilities still may require cleanup under other environmental programs.

Estimates of the approximate number of contaminated sites at DOI, USDA, and NASA facilities are available from a 1995 report by the U.S. Council on Environmental Quality.<sup>[1]</sup> DOI is responsible for a large number of potentially contaminated sites on the more than 440 million acres of federal land it manages. DOI estimates that it may have as many as 26,000 sites requiring some cleanup. These sites, which include those at facilities listed in the Docket, are located at abandoned mines, oil and gas production sites, underground storage tanks, landfills, and other facilities. Contaminants at these sites are primarily from sedimentation in surface waters, acid mine drainage, and household chemical wastes.<sup>[1]</sup> USDA currently estimates that, including sites at facilities already listed on the Docket, there are 3,000 potentially contaminated sites on land under its management. USDA has about 25,000 abandoned and inactive mining sites, but only about 10 percent are expected to require CERCLA or RCRA cleanup. Contaminants at USDA sites are primarily the result of hazardous waste from mining, chemical wastes, and sediment in surface waters. A complete inventory of potentially contaminated sites is underway.

NASA has identified 730 potentially contaminated sites at the 17 facilities listed on the Docket. These sites are the result of such problems as leaking underground storage tanks, exposed asbestos, and mercury spills. The primary contaminants are fuels, solvents, and industrial waste constituents. As of October 1995, no further action was required or active remediation had been completed at 155 of these sites, 75 sites were undergoing active

remediation, and 350 were undergoing site evaluation and preliminary assessment.<sup>[1]</sup>

As illustrated by DOI, USDA, and NASA, the types of contamination problems at facilities managed by civilian federal agencies vary from agency to agency. Examples of the types of contaminated facilities at selected agencies are presented in Exhibit 8-2.

#### 8.4 Estimated Cleanup Costs

Developing accurate cost estimates for cleaning up contaminated CFA sites is difficult, primarily because detailed site information is not available. However, budget data for most federal civilian agencies are available in the FEDPLAN-PC database maintained by EPA, in accordance with Office of Management and Budget Circular A-106.<sup>[6]</sup> FEDPLAN-PC, which is updated regularly by agencies with responsibilities for contaminated waste site management, provides a mechanism for: characterizing environmental activities at federal facilities; establishing priorities for these activities; and identifying resources needed to comply with federal, state, and local environmental requirements.

As of December 1996, budget data for fiscal year (FY) 1996 and FY 1997 were available in FEDPLAN-PC for 14 civilian federal agencies. These agencies reported spending a total of \$322.1 million in FY 1996 for cleanup activities.<sup>[7]</sup> The agencies' estimated budgetary needs of \$288.0 million for hazardous waste activities in FY 1997.<sup>[7]</sup> The FY 1996 budgets and FY 1997 estimates for the 14 civilian federal agencies listed in the FEDPLAN-PC database are presented in Exhibit 8-3. Life-cycle cost estimates are available for DOI, USDA, and NASA in 1994 dollars. Based on current information, DOI estimates that it will take between \$3.9 billion and \$8.2 billion to complete cleanup of its contaminated sites. USDA's current estimate of its overall cleanup cost is \$2.5 billion. NASA estimates its overall cleanup cost will be between \$1.5 billion and \$2 billion.<sup>[1]</sup> The range for these estimates is \$7.9 to \$12.7 billion in 1994 dollars and \$8.4 to \$13.5 billion in 1996 dollars. Assuming that these costs represent 70 percent of that of all CFA sites (based on the number of facilities), the life-cycle-cost for all CFA sites is estimated to be \$12.0 to \$19.0 billion, with an average of \$15.0 billion.

**Exhibit 8-2: Examples of Types of Contaminated Facilities at Civilian Federal Agencies**

<b>Department of Agriculture</b>	
Forest Service	<ul style="list-style-type: none"> <li>➡ Abandoned mining sites—mine tailings were disposed on-site in unlined pits.</li> <li>➡ Sanitary landfills and aboveground dumps—hazardous waste may have been disposed at Forest Service landfills.</li> <li>➡ Wood preservation sites and three laboratories.</li> <li>➡ Uninvestigated sites—hundreds of sites need to be investigated for contamination.</li> </ul>
Agricultural Research Service	<ul style="list-style-type: none"> <li>➡ Research laboratories—hazardous chemicals were used and disposed on-site in dry wells, surface impoundments, septic tanks, and other areas.</li> </ul>
Commodity Credit Corporation (CCC)	<ul style="list-style-type: none"> <li>➡ Grain storage facilities—carbon tetrachloride and other fumigants were applied to protect grain stored in the facilities. The CCC has not assessed most of the 2,000 sites it once operated.</li> </ul>
Farmers Home Administration	<ul style="list-style-type: none"> <li>➡ Farms acquired through foreclosure—pesticides and other hazardous chemicals may have been disposed of on the land.</li> </ul>
<b>Department of Commerce</b>	
	<ul style="list-style-type: none"> <li>➡ Research laboratories operated by the National Oceanographic and Atmospheric Administration.</li> <li>➡ Properties acquired through foreclosure by the Economic Development Administration—industrial solvents and other wastes were generated from production activities at steel mills, iron foundries, leather tanneries, furniture manufacturers, and other heavy industries.</li> </ul>
<b>Environmental Protection Agency (EPA)</b>	<ul style="list-style-type: none"> <li>➡ EPA laboratories—hazardous wastes were either generated or stored for research purposes.</li> </ul>
<b>General Services Administration (GSA)</b>	<ul style="list-style-type: none"> <li>➡ GSA buildings and sites—although few locations have contamination problems, GSA may be liable for contaminated sites it has sold</li> </ul>
<b>Department of Interior</b>	
Bureau of Land Management (BLM)	<ul style="list-style-type: none"> <li>➡ Approximately 3,400 closed landfills may exist on BLM land—hazardous wastes may have been disposed at these BLM landfills.</li> <li>➡ Abandoned mining operations—tailings were left on-site at many mines.</li> <li>➡ Unauthorized hazardous waste sites—contaminants may have been illegally dumped on BLM land. The extent of the problem is unknown as BLM has not conducted a complete survey of its lands.</li> </ul>
<b>Department of the Interior (continued)</b>	
Bureau of Mines	<ul style="list-style-type: none"> <li>➡ Research laboratories—hazardous materials were used, stored, or disposed on-site in landfills.</li> </ul>
Bureau of Reclamation	<ul style="list-style-type: none"> <li>➡ Reservoirs and drinking water supplies contaminated with agricultural runoff.</li> </ul>
National Park Service	<ul style="list-style-type: none"> <li>➡ Landfills and dumps inherited when the land was acquired.</li> <li>➡ Abandoned mining operations—tailings were left on-site at many mines.</li> </ul>
Fish and Wildlife Service	<ul style="list-style-type: none"> <li>➡ Polluted sites—agricultural runoff of pesticides and fertilizers or upstream discharges of pollutants have contaminated some land.</li> <li>➡ Inherited land previously used for industrial or defense purposes—industrial pollutants were disposed of on-site at inherited property. Some of these sites are former Department of Defense properties.</li> </ul>
<b>Department of Justice</b>	
	<ul style="list-style-type: none"> <li>➡ Federal penitentiaries—hazardous materials were generated from industrial activities, including printing, woodworking, metalworking, and other activities.</li> <li>➡ Illegal drug laboratories confiscated by the Drug Enforcement Agency—toxins were improperly stored or disposed at these drug laboratories.</li> </ul>

**Exhibit 8-2: Examples of Types of Contaminated Facilities at Civilian Federal Agencies (continued)**

<b>National Aeronautics and Space Administration (NASA)</b>	➡ Field installations, research laboratories, or industrial plants—hazardous materials were used, stored, or disposed on-site. Some NASA plants may have groundwater contamination.
<b>Small Business Administration</b>	➡ Properties acquired through foreclosure—hazardous materials may have been improperly used or disposed on the property.
<b>Tennessee Valley Authority</b>	➡ Power generating plants and a fertilizer development laboratory—wastes, primarily consisting of fly ash and coal piles, have been disposed in on-site landfills.
<b>Department of Transportation</b>	
Federal Aviation Administration (FAA)	➡ FAA Technical Center—soil and groundwater may be contaminated at 22 areas of the center. This site is on the NPL and assessment and remedial work is underway. ➡ Airfields—hazardous solvents and oils may have been spilled at airfields. As many as 53 Alaskan airfields may be contaminated.
U.S. Coast Guard	➡ Central storage areas for fuel and operation and maintenance facilities—solvents, fuel, or waste by-products leaked into the ground.
<b>Department of Veterans Affairs</b>	➡ Medical centers—hazardous and medical wastes were produced, stored, and incinerated.
Source: U.S. Council on Environmental Quality, Office of Management and Budget, <i>Improving Federal Facilities Cleanup</i> , October 1995, and Congressional Budget Office, <i>Federal Agency Summaries: A Supplement to Federal Liabilities Under Hazardous Waste Laws</i> , May 1990.	

**8.5 Remedial Technologies**

Little information is available on the technologies being used to cleanup facilities owned or operated by civilian federal agencies. To the extent that the contaminants and media at these sites are similar to those of other industrial

facilities, similar technologies can be used. EPA's "Innovative Treatment Technologies: Annual Status Report (Eighth Edition)"<sup>[8]</sup> describes technology use trends at NPL, DOD and DOE sites, and a related database<sup>[9]</sup> provides more detailed data on the sites and applications.

**Exhibit 8-3: Funding for Cleanup at Civilian Federal Agencies<sup>a</sup>**

<b>Agency</b>	<b>FY 1996 Expenditures for Hazardous Waste Cleanup (thousands)</b>	<b>FY 1997 Budget for Hazardous Waste Cleanup (thousands)</b>
Department of Agriculture	34,204	45,108
Department of Commerce	6,387	6,261
Army Corps of Engineers <sup>b</sup>	8,487	667
Environmental Protection Agency	0	0
General Services Administration	0	0
Department of Health and Human Services	3,075	1,050
Department of the Interior	101,438	24,066
Department of Labor	0	0
National Aeronautics and Space Administration	151,691	193,259
Department of State	19	1,080
Tennessee Valley Authority	0	5,880
Department of Transportation	16,819	17,975
Department of Treasury	0	0
Veterans Administration	0	0
<b>Total (14 agencies)</b>	<b>322,120</b>	<b>288,024</b>

**Notes:**

<sup>a</sup> The U.S. Army Corps of Engineers manages environmental cleanup projects for a variety of civilian federal agencies as well as for the U.S. Department of Defense and the U.S. Department of Energy. Budgetary data presented in this table is for the Corps of Engineers' environmental cleanup work at *civilian* federal facilities.

<sup>b</sup> As of December 1996, budget data for the Central Intelligence Agency, the Department of Housing and Urban Development, the Department of Justice, and the U.S. Postal Service for FY 1995 and FY 1996 were not available in FEDPLAN-PC. The fact that budget data were unavailable or that some agencies estimate no FY 1996 budget expenditures for hazardous waste cleanup does not mean that the environmental cleanup work for which these agencies are responsible has been completed.

Source: U.S. Environmental Protection Agency, Federal Facilities Enforcement Office, "FEDPLAN-PC," December 1996.

**8.6 References**

1. U.S. Council on Environmental Quality, Office of Management and Budget, *Improving Federal Facilities Cleanup*, October 1995.
2. U.S. Environmental Protection Agency. "Federal Agency Hazardous Waste Compliance Docket," 60 *Federal Register*, 18474-18518, April 11, 1995.
3. U.S. Environmental Protection Agency, "Policy on Enforcement of Lender Liability Rule on Federal Agencies," 60 *Federal Register*, 63517, December 11, 1995.
4. U.S. Environmental Protection Agency, "National Oil and Hazardous Substances Pollution Contingency Plan; Lender Liability Under CERCLA," 57 *Federal Register* No. 83, 18344, April 29, 1992.
5. Federal Agency Hazardous Waste Compliance Docket, *Docket Revision Preamble*, Federal Facilities Enforcement Office, U.S. Environmental Protection Agency, March 14, 1995.



6. Office of Management and Budget, Executive Office of the President, *Circular A-106: Reporting Requirements in Connection with the Prevention, Control, and Abatement of Environmental Pollution at Existing Federal Facilities*, December 31, 1974.
7. U.S. Environmental Protection Agency, Federal Facilities Compliance Office, *FEDPLAN-PC*, December 1996.
8. U.S. EPA, Office of Solid Waste and Emergency Response, Technology Innovation Office, *Innovative Treatment Technologies: Annual Status Report (Eighth Edition)*, EPA-542-R-96-010, November 1996.
9. U.S. EPA, Office of Solid Waste and Emergency Response, Technology Innovation Office, *Innovative Treatment Technologies: Annual Status Report Database, (ITT Database)*, EPA-542-C-96-002, January 1997.

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